ADEM GENERAL PERMIT RATIONALE
NONCONTACT COOLING WATER AND BOILER BLOWDOWN
ALG250000

DATE: **April 4, 2010**

PREPARED BY: **Lee Warren**

LOCATION: ALL WATERS OF THE STATE NOT DESIGNATED OUTSTANDING NATIONAL RESOURCE WATER, OUTSTANDING ALABAMA WATER, OR TREASURED ALABAMA LAKE

PERMIT IS REISSUANCE DUE TO EXPIRATION

DISCUSSION:

The Department is proposing to reissue NPDES General Permit ALG250000. The permit is intended to cover noncontact cooling water, cooling tower blowdown, and boiler blowdown with and without demineralizer wastewater. (Steam electric power plants are excluded from coverage under this permit.)

NOTE: The parameters for each of the following discharges, i.e. DSN#...., are proposed to be continued in this permit, as in the previous permit, unless otherwise noted.

DSN001 Discharges associated with non-contact cooling water, cooling tower blowdown, uncontaminated condensate, boiler blowdown, and demineralizer wastewater. This outfall requires monitoring and/or limitations for the following parameters:

Flow Flow is to be measured in gallons per day. Monitoring frequency is 1/month.

pH pH limitations are 6.0 daily minimum and 8.5 daily maximum for waste water discharges as set forth in ADEM Administrative Code R. 336-6-10. Monitoring frequency is 1/month.

Temperature

The temperature will be limited to 90 degrees Fahrenheit, except in the Tennessee and Cahaba River Basins and in the Tallapoosa River from Thurlow Dam to the confluence of the Tallapoosa and Coosa Rivers where it will be limited to 86 degrees Fahrenheit in accordance with ADEM Administrative Code Division 6, Volume 1. Monitoring frequency is 1/month.

Total residual chlorine

The daily maximum and the monthly average limits for chlorine are 0.019 mg/l and 0.011 mg/l. EPA's suggested water quality criteria for total residual chlorine of 0.011 mg/l for chronic toxicity and 0.019 mg/l for acute toxicity are being used as the monthly average and maximum values respectively for discharges into zero flow streams. Monitoring frequency is 1/2 weeks.

Based on best professional judgment (BPJ), facilities will be required to monitor for the concentrations of chlorine listed above except under two conditions. The conditions are:

1. If no chlorine is present in or added to the source water.

2. If the distance from the end of the pipe to the receiving water of the state is greater than 2,500 feet and the applicant can demonstrate that the above limits are being met at the receiving water of the state.

If these conditions cannot be met, the permittee must monitor as required by the permit.

However, if these conditions are met, the facility must code the total residual chlorine parameter on the electronic Discharge Monitoring Report (E-DMR) as *9 or the hardcopy DMR as "NODI=9" (monitoring is conditional not required this period).

The permittee will be required to monitor during shock chlorination.

Chlorides, Total

If the boiler blowdown exceeds 5,000 gallons per day or if demineralizer wastewater is discharged, then total chlorides must be monitored in addition to the flow, pH, and temperature. Chlorides will have a limit of 860 mg/l to protect water quality. If necessary, the demineralizer wastewater may be diluted to meet water quality standards. Monitoring frequency is 1/month.

Total Dissolved Solids

If the boiler blowdown exceeds 5,000 gallons per day or if demineralizer wastewater is discharged, then total dissolved solids must be monitored in addition to the flow, pH, and temperature. If necessary, the demineralizer wastewater may be diluted to meet water quality standards. Monitoring frequency is 1/month.

DSN002 Discharges (not containing chlorine) associated with non-contact cooling water, cooling tower blowdown, uncontaminated condensate, boiler blowdown, and demineralizer wastewater has been deleted since **DSN001** can also address discharges not containing chlorine. The below footnote was added to **DSN001**:

Monitoring is not required if the source water is free of chlorine and no chlorine is added to the cooling water system. However, the facility must code the total residual chlorine parameter on the electronic Discharge Monitoring Report (DMR) as *9 or the hardcopy DMR as "NODI=9" (monitoring is conditional not required this period).

The permit requires that the permittee shall notify the Director in writing not later than sixty (60) days prior to instituting the use of any biocide corrosion inhibitor or chemical additive in a cooling or boiler system, not identified in the application for this permit, from which discharge is allowed by this permit. Such notification shall include:

(1) name and general composition of biocide or chemical,

(2) 48-hour median tolerance limit data for organisms representative of the biota of the waterway into which the discharge will ultimately reach, (The fathead minnow (pimephales promeals) and cladoceran (Ceradaphnia dubia) are the required test organisms with one exception. For salt water, the organisms shall be sheepshead minnow, mysid, sea urchin, inland silverside.) The previous permit just referenced organisms representative of the biota of the waterway into which the discharge will ultimately reach. However, with this reissuance the Department is specifying the organisms which must be tested. Also instead of the 96-hour LC50, the Department is allowing the 48-hr LC50 since there could only be a few isolated incidences where a 96-hr acute test might pick up a problem that was missed by a 48-hr acute test and the 96-hr test requires feeding of the organisms which could introduce additional problems with the test. The 48-hr test is also more consistent with the other NPDES Permits.

(3) quantities to be used,

(4) frequencies of use,

(5) proposed discharge concentrations, and

(6) EPA registration of number, if applicable.

The use of a biocide or additive containing tributyl tin, tributyl tin oxide, zinc, chromium or related compounds in a cooling or boiler system(s), from which a discharge regulated by the permit occurs, is prohibited. The use of any additive not identified in the permit or in the application for the permit prior to a determination by the Department that permit modification controlling discharge of the additive is prohibited.

This permit does not authorize new sources or new discharges of pollutants of concern to impaired waters unless consistent with an EPA-approved Total Maximum Daily Load (TMDL) and applicable State law. Impaired waters are those that do not meet applicable water quality standards and are identified on the State of Alabama's 303(d) list, or an EPA approved TMDL. Pollutants of concern are those pollutants for which the water body is listed as impaired and contribute to the listed impairment.

Section 316(b) of the Clean Water Act requires that facilities minimize adverse environmental impact resulting from the operation of cooling water intake structures

(CWIS) by using the "best technology available" (BTA). U.S. EPA has promulgated rules to implement these requirements for new facilities (Phase I rules), large, existing power plants (Phase II rules[i]) and new offshore oil and gas extraction facilities (Phase III rules), and implementation must take place through the issuance of NPDES permits. However, there is a large universe of facilities which are not specifically addressed by the rules, including:

- New facilities, including offshore oil and gas, with a CWIS design flow less than 2 MGD;
- Existing power plants with a CWIS design flow less than 50 MGD;
- Existing manufacturing facilities such as existing steel mills, paper mills, etc., as well as existing offshore oil and natural gas facilities, with a surface water intake which uses at least a portion of the intake flow for cooling purposes.

All of these facilities, including those not specifically addressed by rules, must be evaluated for 316(b) compliance. For those facilities not addressed in Phase I, II, or III rules, a BTA determination must be made using best professional judgment.

For the initial BTA determination, one of the following findings will be determined with the appropriate requirements established as part of coverage:

A. The CWIS is clearly in compliance with BTA and available information fully characterizes the CWIS for purposes of making a BTA determination; or

B. The CWIS is in compliance with BTA, but available information is limited and detailed CWIS information will need to be collected; or

C. The CWIS is in noncompliance with BTA. Not only will detailed information be required, but an individual NPDES permit and a compliance schedule will also be required.

For the initial BTA determination, a finding of noncompliance under Item C. above will be made if there are identified issues or concerns about impingement/entrainment (I/E). Identified issues or concerns may include CWIS performance data from facilities with similar structures.

In general, a review of the information needed to evaluate the intake prior to issuing coverage under the NPDES permit will be made. There are a number of options which might be available to the permittee, including reducing intake flow velocity, installing better screens, barrier nets, reducing intake flow, or modifying the operation of the intake structure to reduce impingement and entrainment during critical time periods such as spawning. Based on BPJ, the NPDES permit coverage may require follow-up I/E monitoring or other detailed information to determine the impact of the CWIS and the need for future permit requirements.

Each time coverage under the permit is renewed, all available information (including information required by the existing permit) will be used to re-evaluate the facility's intake structure to determine if it meets BTA.